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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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08/917,480

08/26/1997

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038190/291118

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03/17/2008

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EXAMINER

DINH, TIEN QUANG

ART UNIT

PAPER NUMBER

3644

MAIL DATE

DELIVERY MODE

03/17/2008

PAPER

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* SEAN R. WAKAYAMA

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Appeal 2007-0669  
Application 08/917,480  
Technology Center 3600

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Decided: March 17, 2008

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Before MURRIEL E. CRAWFORD, JENNIFER D. BAHR, and  
LINDA E. HORNER, *Administrative Patent Judges*.

CRAWFORD, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant appeals under 35 U.S.C. § 134 (2002) from a final rejection of claims 1 to 20. We have jurisdiction under 35 U.S.C. § 6(b) (2002).

Appellant invented a tailless aircraft having a control surface reconfiguration system wherein for each of a plurality of different flight conditions, independently deflectable flight control surfaces are selectively

reconfigured to respective predetermined positions which in combination optimize the spanwise force distribution across the wing (Specification 1).

We have jurisdiction under 35 U.S.C. § 6(b) (2002).

Claim 1 under appeal reads as follows:

1. A tailless aircraft, including:

a wing having a trailing edge and independently deflectable flight control surfaces located along the trailing edge, the wing being capable during flight of generating a normal lifting force having a spanwise force distribution across the wing; and

a control surface reconfiguration system wherein, for each of a plurality of different flight conditions, the flight control surfaces are selectively reconfigurable to respective predetermined positions, which in combination, optimize the spanwise force distribution across the wing for each of the plurality of different flight conditions including a low speed flight condition wherein first selected ones of the deflectable flight control surfaces located at stall-critical spanwise locations are positioned to increase a local coefficient of lift and other deflectable flight control surfaces are positioned to control pitch trim.

## REJECTIONS

The Examiner rejected claims 6, 16 and 18 under 35 U.S.C. §112, second paragraph.<sup>1</sup>

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<sup>1</sup> The Examiner's Answer "Grounds of Rejections" does not list the 35 U.S.C. 112, 2<sup>nd</sup> para. rejection of claims 6, 16 and 18 stated in the Final Rejection of April 2, 2002. However, the argument Section of the Answer states that the rejection is maintained. In addition, the brief addresses the rejection (Brief 7). Therefore, we assume that the rejection has been maintained.

The Examiner rejected claims 1 to 5, 7 to 15, 17, 19 and 20 under 35 U.S.C. § 103(a) as being unpatentable over Ashkenas in view of Whitener.

The Examiner rejected claims 6, 16 and 18 under 35 U.S.C. § 103(a) as being unpatentable over Ashkenas in view of Whitener and Lewis.

### REFERENCES

The prior art relied upon by the Examiner in rejecting the claims on appeal is:

Ashkenas	US 2,549,045	Apr. 17, 1951
Lewis	US 4,796,192	Jan. 03, 1989
Whitener	US 5,088,661	Feb. 18, 1992

In support of the obviousness rejections, the Examiner finds that Whitener inherently discloses independently deflectable flight control surfaces which are selectively reconfigured to respective predetermined positions which in combination optimize the spanwise force distribution across the wing (Final Rejection 3; Answer 6).

Appellant contends that Whitener does not inherently disclose a reconfiguration system wherein for each of a plurality of different flight conditions, independently deflectable flight control surfaces are selectively reconfigured to respective predetermined positions which in combination optimize the spanwise force distribution across the wing.

## ISSUE

Whether the Appellant has shown that the Examiner erred in finding that Whitener inherently discloses a reconfiguration system wherein for each of a plurality of different flight conditions, independently deflectable flight control surfaces are selectively reconfigured to respective predetermined positions which in combination optimize the spanwise force distribution across the wing.

## FINDINGS OF FACT

Appellant invented a tailless aircraft having a wing with a trailing edge that is capable during flight of generating a normal lifting force along the trailing edge (Specification pages 3 to 4; Figures 5, 6, and 7). A plurality of independently deflectable flight control surfaces 47, 49, 51, 53, 55 and 57 are located along the trailing edge of the wing (Specification 11). The aircraft also includes a control surface reconfiguration system which for each of a plurality of different flight conditions selectively reconfigures the flight control surfaces to a respective predetermined position which in combination optimize the spanwise force distribution across the wing (Specification 4). For a cruising condition, the control surfaces are configured as depicted in Figure 5, to achieve spanwise lift distribution that optimizes the lift to drag ratio while maintaining the aircraft at a trimmed angle of attack (Specification 4). For a pitch maneuver, as depicted in Figure 6, wherein there is increased loading on the wing frame, the control surfaces are configured to achieve a spanwise lift distribution that minimizes the increased bending moments that are necessarily a result from increased loading on the wing (Specification 4). At low speed conditions, depicted in

Figure 7, as in takeoff or landing when lift is maximized and trim is maintained, the control surfaces are deflected downward in stall critical regions to increase the maximum lift and deflected upward in non-stall-critical regions to trim the aircraft (Specification 5).

Ashkenas discloses a tailless aircraft having independently controlled elevons 4 and split rudders 5 (col. 3, ll. 14 to 21).

Whitener discloses an aircraft which includes control elements that are controlled by a central processor 152 (col. 11, ll. 29 to 31). The control elements are employed to control the coefficient of lift of the aircraft (col. 9, ll. 46 to 50). Whitener does not discuss the optimization of the spanwise distribution across the wing. The system disclosed in Whitener does not necessarily optimize the spanwise force distribution across the wing for each of a plurality of different flight conditions.

Lewis is relied on by the Examiner to teach that the control surfaces can be used to reduce bending moments. Lewis does not disclose that the system optimizes the spanwise force distribution across the wing for each of a plurality of different flight conditions.

## ANALYSIS

We will not sustain this rejection. Whitener does not disclose a reconfiguration system wherein for each of a plurality of different flight conditions, independently deflectable flight control surfaces are selectively reconfigured to respective predetermined positions which in combination optimize the spanwise force distribution across the wing. Whitener does not discuss spanwise force distribution across the wing. The Examiner has not

directed our attention to any disclosure in Whitener that establishes that the Whitener system necessarily optimizes the spanwise distribution across the wing. As such, Whitener does not *inherently* disclose the optimization of the spanwise force distribution across the wing.

We remind the Examiner that when relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art. *See Continental Can Co. v. Monsanto Co.*, 948 F.2d 1264, 1268 (Fed. Cir. 1991); *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Patent App. & Int. 1990).

In this regard, we are not persuaded that the optimization of the spanwise force distribution across the wing is necessarily present in the Whitener system for the maneuverability of the aircraft. The Examiner has failed to establish that the optimization of the spanwise force distribution is necessarily present in the Whitener aircraft and thus we will not sustain this rejection.

We will also not sustain the rejection of claims 6, 16 and 18 as being unpatentable over Ashkenas in view of Whitener and Lewis because this rejection also relies on Whitener for inherently disclosing the optimization of the spanwise distribution across the wing.

The decision of the Examiner is reversed.

REVERSED

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